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LETTER TO THE EDITOR

We are pleased to receive Letters to the Editor on appropriate subjects. These Letters should be submitted in typewritten form, double-spaced, and are not to exceed 2½ pages. When appropriate, we will solicit comments from the original authors. All Letters to the Editor are subject to editing and possible abridgment.

To the Editor:

As clinicians, we read with considerable astonishment the statements and findings of Christie et al in their article with the most imposing title of "Spark Source Mass Spectographic Study of Metal Allergenic Substances on the Skin" [1].

These investigators state, "Increased chromium contact of the skin was evident in one case of wrist watch eczema." They go on to state that the source of chromium in this so-called "wrist watch eczema" was a stainless steel watch case. Polak et al [2] whom they cite as their first reference state clearly, "Metallic chromium is not immunogenic." Closer to home, their Swedish colleague, Fregert [3] made the following statement, "Chromium metal and stainless steel do not yield chromium in a solvent form and so do not cause contact eczema."

It may be categorically stated that so-called wrist watch eczema is never due to stainless steel or chromium, but to nickel. Even watches that are labeled stainless steel often contain some nickel-plated portions which can readily be revealed by the dimethylglyoxime test [4,5]. It is well known that despite the fact that the steel and refractory industries use more than 80% chromic ore, no cases of allergic contact dermatitis have been reported from exposure to such metallic chromium [6]. The authors apparently have failed to distinguish between metallic chromium which is not allergenic and the chromates which are. Finally, the statement, "We have demonstrated an increase in chromium content of the skin due to one single contact with a metal door handle containing chromium, even after a period of three weeks," staggers the imagination. Was the patient's hand isolated for three weeks?

1. Christie OHJ, Dinh-Nguyen N, Vincent J, Hellgren L, Pimlott W: Spark source mass spectrographic study of metal allergenic substances on the skin. J Invest Dermatol 67:587–590, 1976
2. Polak L, Turk JL, Frey JR: Studies of contact hypersensitivity to chromium compounds. Prog Allergy 17:145–226, 1973
3. Fregert S: Manual of Contact Dermatitis. Copenhagen, Munksgaard, 1974, p 21
4. Fisher AA: Safety of stainless steel in nickel sensitivity. JAMA 221:1279, 1972
5. Fisher AA: Contact Dermatitis. Second edition. Philadelphia, Lea & Febiger, 1973, p 300
6. Walsh EN: Chromate hazards in industry. JAMA 153:1305, 1953

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This letter was submitted to the authors of the paper who offer the following reply:

We do not agree with the statements of Fisher and Brancaccio.

First of all, we want to make it clear that in this particular "wrist watch eczema" we never mentioned the etiology but stated only that we found chromium, nickel, cobalt, etc. and that the amount of chromium was increased by a factor of 6. Our intention was to show which substances of inorganic origin could be extracted from the skin of a patient with eczema using spark source mass spectrography.

Contrary to Fisher and Brancaccio and the authors they cite, we definitely claim that chromium can be released in microscale from the metal and that the high chromium content under the wrist watch probably emanated from the steel cover containing chromium. There seems to be no doubt, as the chromium content in the eczema under the cover (containing chromium) was increased by a factor of 6 compared to the adjacent skin. We also found an increased chromium content in the skin after touching the handle which contained chromium (using the dorsum of the hand as one of the precautions to avoid contamination with chromium during the trial period).

We want to underline that spark source mass spectrography is something different from conventional mass spectrometry. Spark source mass spectrography allows detection of inorganic substances, metals, but not their salts (i.e., chromates). It is not possible to say whether the substances identified by mass spectrography were metallic chromium or chromium emanating from its derivatives deposited on the skin. Several substances in sweat can react with metallic chromium and form (in reactions which occur slowly and partially) different salts or complexes or organochromic compounds that are particularly allergenic.